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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to a weight or volumetric or counting feeder provided with the hopper in which the entrance slot of the feed stock carried out the opening to the upper part, and the transporting means which is connected with the taking-out mouth of the lower part of this hopper, and transports a feed stock to a fixed quantity [every] taking-out shot.

[0002]

[Description of the Prior Art]Conventionally, there is a weight or volumetric or counting feeder which stuffs a tablet etc. into a bottle fixed quantity every. In this weight or volumetric or counting feeder, the tablet supplied above the hopper from the entrance slot which carries out an opening was transported even to the fixed quantity [every] taking-out shot by vibration of the concrete supply system connected under the hopper. The tablet which falls with prudence from this taking-out shot was supplied to the constant-rate counting device with which the bottle was installed. And the amount-of-supply level sensor which counts the number of the mounting base in which a bottle is made to lay, and the tablet which falls from a taking-out shot was formed in this constant-rate counting device. The tablet of fixed quantity was stuffed into the bottle by carrying out on-off control of the concrete supply system based on the signal detected with this amount-of-supply level sensor. Since it was difficult to detect the exact number of a tablet as two or more tablets lapping and an amount-of-supply level sensor falling, the role which takes an overlapping tablet into pieces had also been played. Therefore, generally the concrete supply system made to generate vibration was used.

[0003]

[Problem(s) to be Solved by the Invention]However, in the structure of making the tablet of fixed quantity transporting by vibration of a concrete supply system like before, when two or more tablets rubbed mutually repeatedly, it was generated by powder from the tablet. And the tablet may have become inferior goods by generating of this powder. Since there was a possibility that this powder might cause failure of a weight or volumetric or counting feeder, the incidental device for the measure against powder picking needed to be formed in the weight or volumetric or counting feeder, and the cost of the whole device became high. In the weight or volumetric or counting feeder provided with the concrete supply system which generates vibration, since a loud noise occurred by vibration, the measure against noise of making the stand furnished with this concrete supply system constitute from a firm member, and making this stand install in a ground surface directly, and making vibration absorb on the ground

surface etc. was required.

[0004]Then, there is a technical problem of this invention in providing the weight or volumetric or counting feeder which can make noise of a device small while it suppresses to the minimum that two or more tablets are worn and prevents generating of powder.

[0005]

[Means for Solving the Problem]The invention according to claim 1 of this inventions which solved said technical problem, Connect with a taking-out mouth of a lower part of a hopper which carried out the opening of the entrance slot of a feed stock to the upper part, and this hopper, and a feed stock fixed quantity every A transporting means to transport, Are a carrying means which makes a feed stock transported by this transporting means take out to the device exterior a weight or volumetric or counting feeder which it has, and said transporting means, A transferring member which has a rear surface portion caudad prolonged from a mounting surface part in which fixed quantity of a feed stock taken out from a taking-out mouth of said hopper up is made to lay, and the back end of this mounting surface part, It consists of a movable means which makes this transferring member move reciprocately to a sliding direction, and a delivery means which sends out a feed stock laid on a mounting surface part of said transferring member to said carrying means, A rear surface portion of said transferring member is arranged so that a feed stock taken out from a taking-out mouth of said hopper may be dammed up, and a wall surface section in which the front end of the mounting surface part is provided near said carrying means is made to contact.

[0006]In the invention according to claim 1, a feed stock taken out from a taking-out mouth of a hopper is dammed up by rear surface portion of a transferring member. If this transferring member is dropped by a movable means, only fixed quantity will be transported on this mounting surface part until a feed stock dammed up by that rear surface portion stops at a wall surface section which contacts the front end of a mounting surface part of a transferring member. Even if a feed stock has lapped and moved at this time, it will change a feed stock into the state where it took into pieces, by colliding with a wall surface section. And if this transferring member is raised by a movable means, while a feed stock on that mounting surface part will be lifted, that rear surface portion dams up again a feed stock taken out from a hopper. By a delivery means, a feed stock lifted by mounting surface part of a transferring member is sent out to a carrying means near the wall surface section, and is taken out in the device exterior. By repeating such operation, a feed stock is taken out via a delivery means and a carrying means in the fixed quantity [every] exterior.

[0007]The invention according to claim 2 is that a mounting surface part of said transferring member serves as slant-face shape which goes down to a front side from the backside in composition of the invention according to claim 1, and this mounting surface part serves as said delivery means.

[0008]In the invention according to claim 2, in addition to an operation in the invention according to claim 1, where a feed stock is laid in a mounting surface part of a transferring member, If this transferring member is raised by a movable means, this feed stock will go up being supported by wall surface section which contacts the front end of a mounting surface part used as slant-face shape, and this mounting surface part. And if the front end of this mounting surface part reaches the back end of a carrying means near the wall surface section, a feed stock will slide on a mounting surface part top, and will be sent out to a carrying means.

[0009]In composition of the invention according to claim 1 or 2 the invention according to claim 3, Have said transferring member and said at least two delivery means, and these transferring members

adjoin each other by a cross direction, While arranging a rear surface portion of a transferring member located in a method of the very back of the transferring members which adjoin a cross direction for each other so that a feed stock taken out from a taking-out mouth of said hopper may be dammed up, The front end of a mounting surface part of a transferring member located most ahead is made to contact said wall surface section, and each transferring member which adjoins each other by said movable means is made to move reciprocately by turns.

[0010]In the invention according to claim 3, when it is the mounting surface part from which in addition to an operation by the invention according to claim 1 or 2 it had two transferring members, and said delivery means became inclination shape, the following operations are produced. First, if a back transferring member is dropped, a front transferring member will go up. And a feed stock dammed up by a rear surface portion of a back transferring member slides on the mounting surface part top, and moves. A feed stock which moves in this mounting surface part top stops [whether it strikes to a rear surface portion of a transferring member of the front which adjoins ahead of a back transferring member, and]. At this time, it laps and changes a feed stock which has moved into the state where it took into pieces, by colliding with a rear surface portion of a front transferring member. And if a back transferring member is raised, the rear surface portion will dam up a feed stock again. Since a front transferring member descends at this time, if a feed stock supported by mounting surface part of a transferring member of this back and a rear surface portion of a front transferring member reaches the back end of a mounting surface part of a front transferring member, it will slide on a mounting surface part top of a transferring member of this front, and it will move. A feed stock which moves in a mounting surface part top of this front stops [whether it strikes to a wall surface section, and]. At this time, it changes into the state where it took into pieces a feed stock which remains without being taken into pieces at the time of the aforementioned collision. And if a front transferring member is raised, a feed stock supported by a front mounting surface part and said wall surface section of a transferring member will be sent out by the back end of a carrying means to a carrying means. Since a back transferring member descends at this time, a feed stock dammed up by that rear surface portion is again laid on that mounting surface part. When it has two or more transferring members, a feed stock collides with a rear surface portion and a wall surface section only the number of times corresponding to the number of the transferring member.

[0011]A hopper with which the invention according to claim 4 carried out the opening of the entrance slot of a feed stock to the upper part, Connect with said hopper via a passage joined to a taking-out mouth of a lower part of this hopper, and this passage, and a feed stock fixed quantity every A transporting means to transport, In order to make a feed stock transported by this transporting means take out to the device exterior, are a taking-out shot provided in a wall surface section of a device a weight or volumetric or counting feeder which it has, and said transporting means, A transferring member of the front which adjoins a front side of a transferring member of back which adjoins said passage by that outlet side, and a transferring member of this back, and adjoins said wall surface section, Consist these transferring members of a movable means which makes a sliding direction move reciprocately by turns, and said two transferring members, A mounting surface part used as slant-face shape which makes fixed quantity of a feed stock taken out from said hopper lay, and goes down from the backside toward a front side, When it has a rear surface portion caudad prolonged from the back end of this mounting surface part and a transferring member of said back is located in a top dead center of reciprocating movement by a movable means, When it is contacted so that the upper part of the rear surface portion may cover an exit of said passage, and located in a bottom dead point, the mounting

surface part becomes flat-tapped with the undersurface of said passage, and when a transferring member of said front is located in a top dead center, the mounting surface part becomes flat-tapped with the undersurface of said taking-out shot, When located in a bottom dead point, the mounting surface part becomes flat-tapped with a mounting surface part of a back transferring member.

[0012]A mounting surface part of a back transferring member may be caudad located rather than the undersurface of a passage with "it is flat-tapped" here, for example, It means that a mounting surface part of a front transferring member may be located up rather than the undersurface of a taking-out shot, and a mounting surface part of a front transferring member may be caudad located rather than a back mounting surface part.

[0013]In the invention according to claim 4, a feed stock thrown in from an entrance slot of a hopper falls to a taking-out mouth of a hopper lower part with prudence. A feed stock taken out from this taking-out mouth is supplied to a transporting means through a passage. Here, when a back transferring member is located in a top dead center, and the upper part of that rear surface portion covers an exit of this passage, a feed stock supplied from a hopper is dammed up. At this time, a front transferring member was located in a bottom dead point, and became flat-tapped [this mounting surface part] with a mounting surface part of a back transferring member, and the front end of this mounting surface part is in contact with a wall surface section of a device. If a back transferring member is dropped by a movable means, a front transferring member will go up. And if a back transferring member reaches a bottom dead point, only fixed quantity will be transported on the mounting surface part, and a feed stock in which the mounting surface part became flat-tapped with the undersurface of a passage, and was dammed up in the upper part of the rear surface portion will be dammed up by rear surface portion of a front transferring member located in a top dead center. And if a back transferring member is raised again, a feed stock laid on a mounting surface part used as slant-face shape of a back transferring member will be supported by this mounting surface part and rear surface portion of a front transferring member, and will go up. At this time, the upper part of a rear surface portion of a back transferring member covers an exit of a passage again, and a feed stock supplied from a hopper is dammed up. If a transferring member of this back reaches a top dead center, a feed stock dammed up by a rear surface portion of a front transferring member will slide on a mounting surface part top of a transferring member of the front which becomes flat-tapped with a mounting surface part of a back transferring member, and will move. A feed stock which moves in a mounting surface part top of a transferring member of this front is dammed up by wall surface section of a device. And if a front transferring member is raised further, a feed stock laid on a mounting surface part of a front transferring member will be supported by this mounting surface part and said wall surface section, and will go up. If a transferring member of this front reaches a top dead center, a feed stock dammed up by a wall surface section will slide on an undersurface top of a taking-out shot which becomes flat-tapped with a mounting surface part of a front transferring member, and will move. And a feed stock of fixed quantity is taken out from a taking-out shot.

[0014]

[Embodiment of the Invention]Hereafter, with reference to drawings, the details of the weight or volumetric or counting feeder concerning this invention are explained. This embodiment applies a tablet to the weight or volumetric or counting feeder stuffed into a fixed quantity [every] bottle. This weight or volumetric or counting feeder M is provided with the following.

The hopper 1 for supplying the tablet (feed stock) D, as shown in drawing 1.

The rise-and-fall slide device (transporting means) 2 located under this hopper 1.

The device main frame 3 which forms this rise-and-fall slide device 2 in the upper part.
The constant-rate counting device 4 attached to the right-hand side of this device main frame 3.

[0015]The hopper 1 is provided with the following.

The entrance slot 11 which carries out an opening to the upper part in the upper part.

The taking-out mouth 12 which carries out an opening to the lower part caudad.

This entrance slot 11 is larger than the taking-out mouth 12, and the hopper 1 serves as shape which is missing from the taking-out mouth 12, and narrows gradually from the entrance slot 11. And the lid 13 is formed above the hopper 1 so that the entrance slot 11 may be covered.

[0016]The rise-and-fall slide device 2 is provided with the first guiding ascent and descent (transferring member) 21 and second guiding ascent and descent (transferring member) 22 that go up and down to a sliding direction as shown in drawing 2 (A) and (B). This rise-and-fall slide device 2 is provided with the following.

The crankshaft (movable means) 23 which converts rotational movement into reciprocating movement of a sliding direction.

And the first guiding ascent and descent 21 and second guiding ascent and descent 22 adjoin each other by the cross direction so that the front end of the slant surface part 21a of the first guiding ascent and descent 21 may contact the rear surface portion 22b of the second guiding ascent and descent 22. Said first piston P1 is supported for a sliding direction in the first cylinder C1 attached to the upper part of the rise-and-fall slide device 2, enabling free sliding, and is supported in the second cylinder C2 like [the second piston P2] the first piston P1.

[0017]

The motor 24 is attached to the upper surface of the rise-and-fall slide device 2 with the bracket 25 and the bolts 26 and 26, and the axis of rotation (not shown) is attached to the end which is the shank 23d of the crankshaft 23.

[0018]While the hopper 1 is formed in the upper part at the device main frame 3, the rise-and-fall slide device 2 is formed in the inside. This rise-and-fall slide device 2 is connected with the taking-out mouth

12 of the hopper 1 via the passage 31. This passage 31 is formed with the passage formation part material 32 and the silicone rubber board 33. As for this silicone rubber board 33, only that one end is fixed to the device main frame 3, and the exit of the passage 31 is formed by that other end and upper bed of the front part of the passage formation part material 32. Here, it does not turn at this silicone rubber board 33 under the weight of the tablet D supplied from the hopper 1, but has the elastic force at which it turns by the power in which the first guiding ascent and descent 21 goes up by the crankshaft 23. And the breakthrough 34a penetrated from device main frame 3 inside to the exterior is formed above the wall surface section 34 on the right-hand side of this device main frame 3. The taking-out shot (carrying means) 5 is attached to this breakthrough 34a. And the rear surface portion 21b of said first guiding ascent and descent 21 is contacted by the passage 31 so that the exit may be covered, and the front end of the slant surface part 22a of said second guiding ascent and descent 22 is contacted by the wall surface section 34.

[0019]The counting device 4 is provided with the following in fixed quantity.

the constant rate into which the tablet D taken out from the taking-out shot 5 is thrown -- calculation -- the ** hopper 41.

this constant rate -- calculation -- the buck 42 which supports the ** hopper 41 from the bottom.

a fixed quantity -- calculation -- as shown in drawing 3, the amount-of-supply level sensor S which counts the number of the tablet D which falls with prudence from the taking-out shot 5 is formed in the ** hopper 41. This amount-of-supply level sensor S is connected to controller F via the code E, and this controller F is connected to said motor 24 via the code E. The buck 42 serves as section reverse KO type by the upper face part 42a, the lateral portion 42b, and the undersurface part 42c. the besides surface part 42a -- a fixed quantity -- calculation -- the feed chute 43 which supplies the tablet D in the ** hopper 41 in the bottle B is formed, and the mounting base 44 in which the bottle B is made to lay is formed in the lateral portion 42b.

[0020]Next, operation of this weight or volumetric or counting feeder M is explained. First, the bottle B is laid in the position on the mounting base 44. And the lid 13 is opened by hand and the tablet D is thrown in from the entrance slot 11 of the hopper 1. At this time, the rise-and-fall slide device 2 is an initial state, and the tablet D thrown in from the entrance slot 11 of the hopper 1 passes along the passage 31, and is dammed up by the rear surface portion 21b of the first guiding ascent and descent 21. As shown in drawing 4 (a), in an initial state, the slant surface part 21a of the first guiding ascent and descent 21 and the slant surface part 22a of the second guiding ascent and descent 22 are flat-tapped. That is, the first guide 21 is located in a top dead center, and the second guide 22 is located in a bottom dead point.

[0021]Next, the motor 24 of the rise-and-fall slide device 2, the amount-of-supply level sensor S, controller F, and the constant-rate counting device 4 are operated by operating the switch in the weight or volumetric or counting feeder M which is not illustrated. In the first process, an operation of the motor 24 of the rise-and-fall slide device 2 will rotate the first lobe 23a from a top dead center to a bottom dead point via the shank 23d of the axis of rotation of the motor 24, and the crankshaft 23. The first piston P1 descends because this first lobe 23a rotates, and as shown in drawing 4 (b), the first guiding ascent and descent 21 descends. On the other hand, like the first guiding ascent and descent 21, the second guiding ascent and descent 22 goes up via the second piston P2, when the second lobe 23b rotates from a bottom dead point to a top dead center. Here, if the first guiding ascent and descent 21 reaches a bottom dead point, the slant surface part 21a becomes flat-tapped with the undersurface of the

passage 31, and the tablet D dammed up by the rear surface portion 21b will slide on the slant surface part 21a top, and will move. It stops [whether the tablet D which moves in this slant surface part 21a top is beaten to the rear surface portion 22b of the second guiding ascent and descent 22 that has reached the top dead center, and]. At this time, it laps and changes the tablet D which has moved into the state where it took into pieces, by colliding with the rear surface portion 22b of the second guiding ascent and descent 22. Only the quantity as which this tablet D is specified in the area of the slant surface part 21a of the first guiding ascent and descent 21 is supplied on this slant surface part 21a.

[0022]In the second process, the first guiding ascent and descent 21 located in the bottom dead point goes up toward a top dead center at the first process, and the second guiding ascent and descent 22 located in the top dead center descends toward a bottom dead point. If the first guiding ascent and descent 21 reaches a top dead center and the second guiding ascent and descent 22 reaches a bottom dead point, as shown in drawing 4 (c), each slant surface parts 21a and 22a will be in a flat-tapped state. And the tablet D dammed up by the rear surface portion 22b of the second guiding ascent and descent 22 slides on the slant surface part 22a top of the second guiding ascent and descent 22, and moves. It stops [whether the tablet D which moves in this slant surface part 22a top is beaten to the wall surface section 34 of the device main frame 3, and]. At this time, when the tablet D which was not taken into pieces by the aforementioned collision collides with the wall surface section 34 of the device main frame 3, it changes into the state where it took into pieces. The tablet D which is going to move from the exit of the passage 31 onto the slant surface part 21a of the first guiding ascent and descent 21 is again dammed up by the rear surface portion 21b of the first guiding ascent and descent 21. Here, in the second process, where the tablet D is laid on the slant surface part 21a of the first guiding ascent and descent 21, since this first guiding ascent and descent 21 goes up, the tablet D may be caught between the rear end part of this slant surface part 21a, and the silicone rubber board 33. However, since it turns at this silicone rubber board 33 by the power in which the first guiding ascent and descent 21 goes up, the tablet D is not damaged even if the tablet D is inserted between the rear end part of the slant surface part 21a of the first guiding ascent and descent 21, and the silicone rubber board 33. The board which has intensity more than fixed, such as metal, a plastic, and wood, may be used instead of this silicone rubber board 33, for example. In this case, structure where rocking of that other end is attained only above centering on one end of the board which made it fix to a device main frame, enabling free rotation, and made only one end of this board fix to it, enabling this free rotation is used.

[0023]In the third process, the first guiding ascent and descent 21 located in the top dead center descends toward a bottom dead point at the second process, and the second guiding ascent and descent 22 located in the bottom dead point goes up toward a top dead center. If the first guiding ascent and descent 21 reaches a bottom dead point, as shown in drawing 4 (d), the tablet D dammed up by the rear surface portion 21b will move onto the slant surface part 21a again, and will stop [whether it strikes to the rear surface portion 22b of the second guiding ascent and descent 22 that has reached the top dead center, and]. and -- if the second guiding ascent and descent 22 reaches a top dead center, the tablet D dammed up by the wall surface section 34 by the undersurface of the taking-out shot 5 attached to this slant surface part 22a and the wall surface section 34 upper part becoming flat-tapped will slide on the taking-out shot 5 top -- a constant rate -- calculation -- it is taken out to the ** hopper 41. and the state where after this third process is repeating said second process and the third process in order, and the tablet D was taken into pieces -- a fixed quantity [every] constant rate -- calculation -- it is taken out to the ** hopper 41.

[0024]from the taking-out shot 5 -- a fixed quantity -- calculation -- the tablet D taken out by the ** hopper 41 passes along the feed chute 43, and is supplied in the bottle B laid on the mounting base 44. And when the tablet D in the bottle B becomes the predetermined number, the opening and closing cover which is formed in the lower part of the feed chute 43 and which is not illustrated closes automatically, and supply of the tablet D into the bottle B stops. the tablet D taken out from the taking-out shot 5 here -- a fixed quantity -- calculation -- the number counts with the amount-of-supply level sensor S formed near the opening of the ** hopper 41. The signal based on the number of the tablet D detected with this amount-of-supply level sensor S is transmitted to controller F. Based on this signal, the revolving speed of the motor 24 of the rise-and-fall slide device 2 is controlled by this controller F. When there is specifically little number of the tablet D taken out to the number of the tablet D in the bottle B, revolving speed of the motor 24 of the rise-and-fall slide device 2 is made quick. When there is much number of the tablet D taken out to the number of the tablet D in the bottle B, revolving speed of the motor 24 is made late.

[0025]According to the above, the following effects can be acquired in this embodiment. the tablet D of the optimal number [as opposed to / since controller F controls the revolving speed of the motor 24 of the rise-and-fall slide device 2 based on the signal from the amount-of-supply level sensor S / the number of the tablet D in the bottle B in the rise-and-fall slide device 2] -- always -- a fixed quantity -- calculation -- the ** hopper 41 can be supplied.

[0026]As mentioned above, this invention is carried out with various gestalten, without being limited to this embodiment.

(1) Although the feed stock was used as the tablet in this embodiment, this invention may be a capsule, a chip of a semiconductor, etc. which were not limited to this, for example, included a powdered medicine. The container with which a feed stock is supplied may not be restricted to a bottle like this embodiment, but may be a vinyl-like bag etc. It cannot be overemphasized that it can change into the method of the method of making a fixed quantity of this container install in a counting device making control the method and band conveyor which a worker makes exchange manually, and making it exchange automatically, etc. suitably.

(2) Although it was considered as the structure made to contact so that the rear surface portion of a transferring member located most in back may be covered to the exit of a passage in this embodiment, this invention may not be limited to this, for example, may incurvate the taking-out mouth of a hopper, and may be made into structure which is made to contact so that the rear surface portion of a transferring member may be covered to this taking-out mouth. Although it was considered as the structure of making the front end of the slant surface part of the transferring member located most ahead contacting the wall surface section of a device, in this embodiment, a passage is provided behind a taking-out shot and it may be made to, make the front end of said slant surface part contact the wall surface section of this passage for example. Here, the carrying means which can be set in this case will comprise a taking-out shot and a passage.

(3) Although shape of the slant surface part of a transferring member was made into the shape which turns into linear shape by side view in this embodiment, shape of the slant surface part may be made into the shape which becomes circular by side view, for example.

(4) Although it was considered as the two number of a transferring member in this embodiment, this invention may not be limited to this, and the number may be one and may be three or more. Here, since the number of times of the collision for taking a feed stock into pieces supports the number of a

transferring member, the probability of being generated by powder from a feed stock by a feed stock being certainly taken into pieces by increasing the number of a transferring member, and reducing the number of a transferring member becomes low. Therefore, a designer can presume the probability of being generated by powder from the kind of feed stock, etc., and the number of a transferring member can be decided freely.

(5) According to this embodiment, although the crankshaft and the motor were adopted as a movable means, this invention may adopt mechanisms, such as a cam, for example, without being limited to this. It cannot be overemphasized that shape, construction material, etc. of each part article in this embodiment, such as a crank, can be changed suitably.

(6) According to this embodiment, although the mounting surface part of the transferring member serves as the delivery means, this invention may not be limited to this, but may level the mounting surface part of a transferring member, and may make it structure which rakes out the feed stock on the mounting surface part of the transferring member located in a top dead center by the lever of working fixed in a device. In this case, a delivery means serves as a lever of working.

(7) Although the guiding ascent and descent of the hexahedron which has a slant surface part and a rear surface portion as a transferring member was adopted in this embodiment, this invention may be the structure which provided the opening which is not limited to this, for example, has the same slant surface part as this embodiment in the center section of the longitudinal direction of a rectangular parallelepiped. In this case, a feed stock is dammed up when a transferring member is a top dead center like this embodiment, It may be the structure of not being limited to the structure to which a feed stock is moved at the time of a bottom dead point, but damming up a feed stock by an upper rear surface portion from an opening when a transferring member is a bottom dead point, and moving a feed stock to an opening at the time of a top dead center.

[0027]

[Effect of the Invention] Since the feed stock of fixed quantity can be supplied only by making a transferring member move reciprocally to a sliding direction by a movable means, and sending out the feed stock on a mounting surface part to a taking-out shot by a delivery means according to the invention according to claim 1, Two or more feed stocks cannot rub mutually like [in the case of using the conventional vibration] repeatedly, and probability of being generated by powder from a feed stock can be made extremely low. Since a transferring member is made to only move reciprocally to a sliding direction, compared with the noise by vibration, noise can be made extremely small. Since the noise by a transporting means becomes small, while it becomes unnecessary to make the stand to which this transporting means is attached constitute from a firm member, the setting position of this stand is not restricted, either but a transporting means can be freely installed in the suitable place in a weight or volumetric or counting feeder.

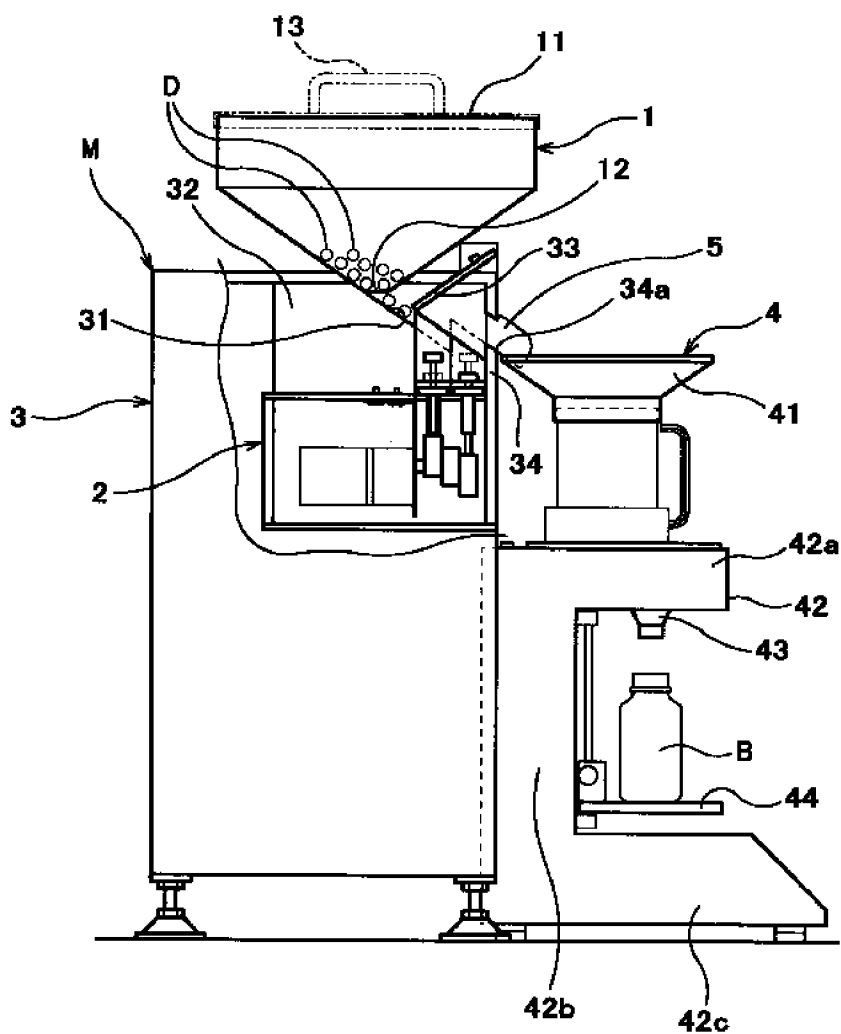
[0028] Since the mounting surface part of a transferring member serves [according to the invention according to claim 2] as a delivery means in addition to the effect by the invention according to claim 1, it is not necessary to form a device as a delivery means, and the manufacturing cost of a weight or volumetric or counting feeder can be made low.

[0029] Since only the number corresponding to the number of the transferring member in the aforementioned collision is performed [according to the invention according to claim 3] in addition to the effect by the invention according to claim 1 or 2, the feed stock which laps the slant surface part top of a transferring member, and moves can be certainly taken into pieces.

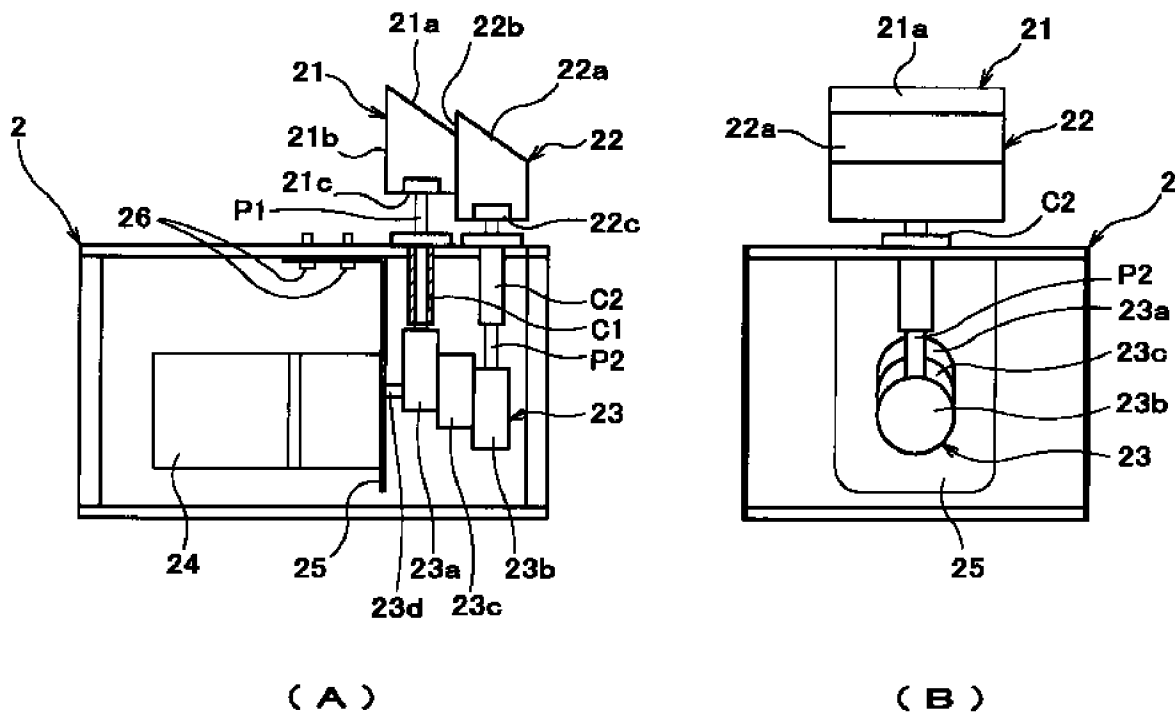
[0030]Since the feed stock of fixed quantity is transported by two transferring members according to the invention according to claim 4, While being able to take into pieces enough the feed stock overlapping in the collision of two times, since the collisions are only two times, two or more feed stocks cannot rub mutually repeatedly, and probability of being generated by powder from a feed stock can be made low.

[Translation done.]

Drawing selection Drawing 1

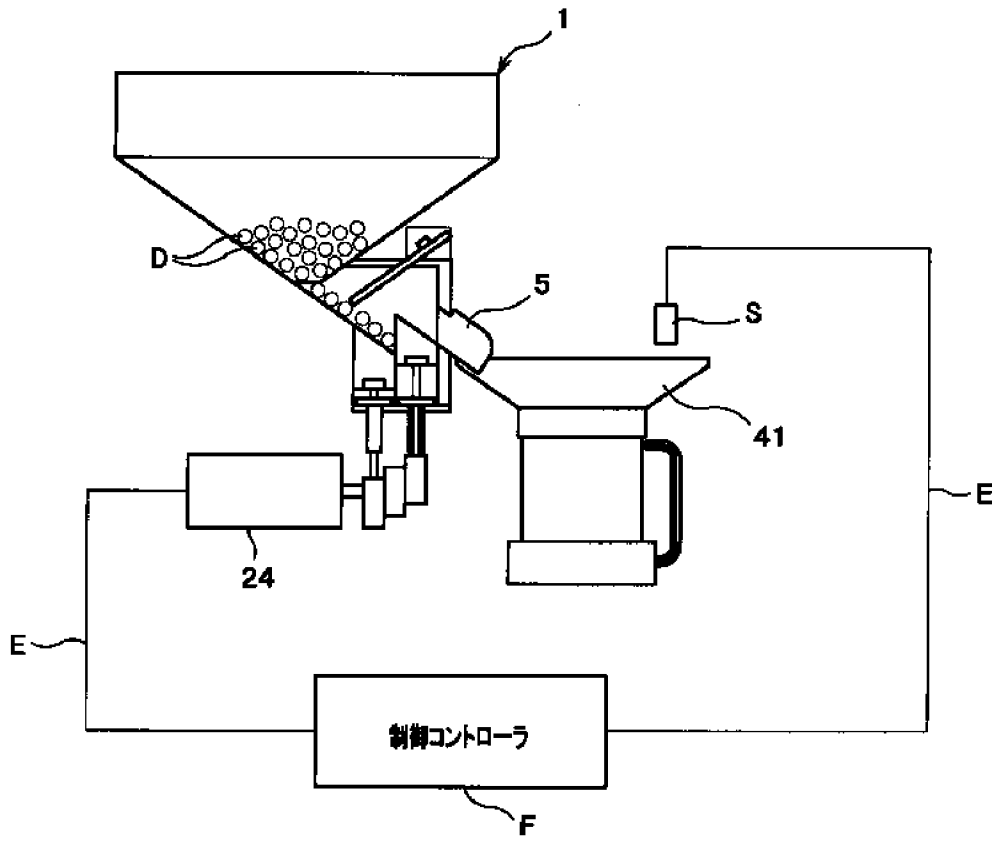


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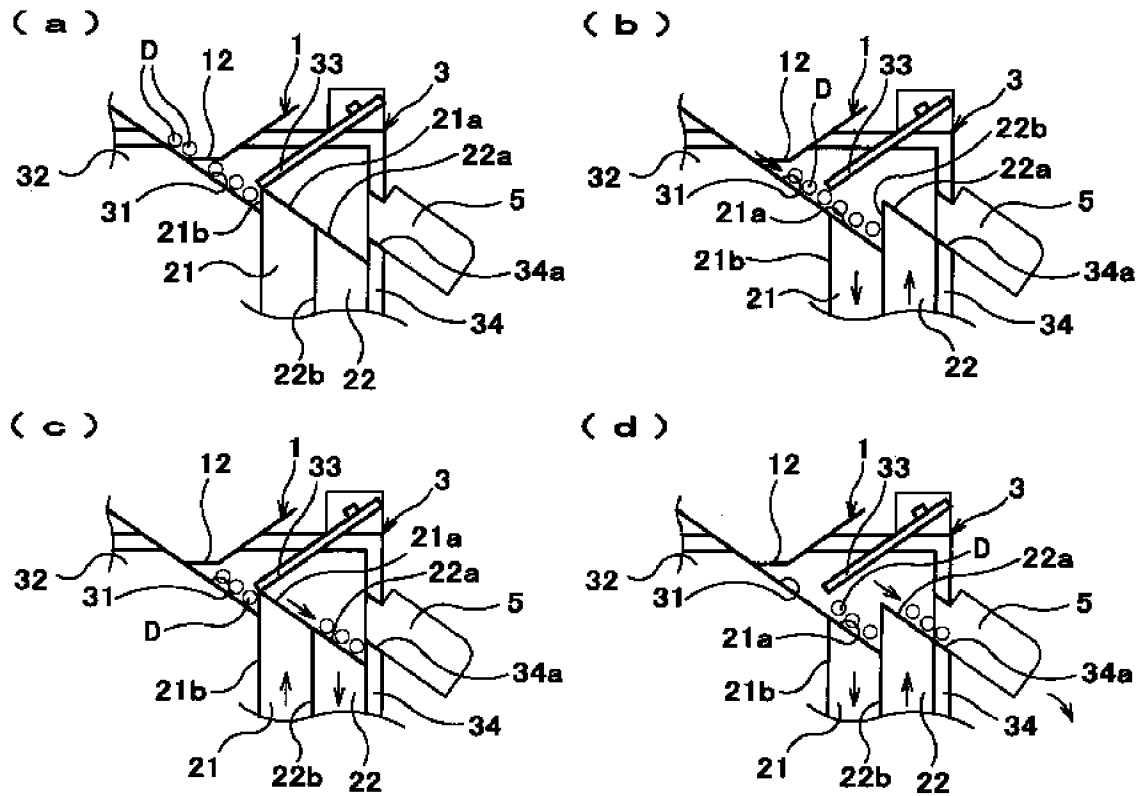
Drawing selection **Drawing 2**

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Drawing selection **Drawing 3**



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Drawing selection Drawing 4

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